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OF

The Royal Microscopical Society,

AND

RECORD OF HISTOLOGICAL RESEARCH

AT HOME AND ABROAD.

All Microscopists who care to know what is going on at home or abroad should take in this Journal.

THE  
MONTHLY MICROSCOPICAL JOURNAL :  
TRANSACTIONS OF  
The Royal Microscopical Society,  
AND RECORD OF HISTOLOGICAL RESEARCH.

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THIS Journal, which commenced in January, 1869, is devoted exclusively to the interests of Microscopical Science in the widest and most accurate sense of the term. It contains not only the proceedings of the Royal Microscopical Society, but also embraces communications from the leading Histologists of Great Britain, the Continent, and America, with a comprehensive *résumé* of the latest Foreign Inquiries, Critical Reviews and Short Notices of the more important works, Bibliographical Lists, and descriptions of all New and improved forms of Microscopes and Microscopic Apparatus; Correspondence on all matters of Histological Controversy; and finally, a Department of 'Notes and Queries,' in which the student can put such questions as may elicit the special information he desires to obtain.

The Editor has also made arrangements for the publication of the most important Papers read before Local Associations. Contributions requiring illustration are accompanied by most carefully drawn Plain or Coloured Plates, and the text is printed in clear and legible type, thus affording the Microscopist a readable Monthly Record of all that takes place in the branches of science specially interesting to him. By thus providing a journal at once thoroughly scientific, advanced, and comprehensive, and issued at such short intervals as to meet the requirements of active investigators, the Publisher hopes to receive the support of all workers with the Microscope, and the assistance and co-operation of all who desire to possess a periodical which creditably represents the labours of British and Foreign Histologists.

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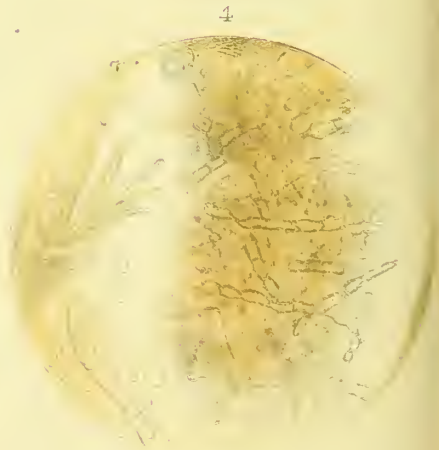
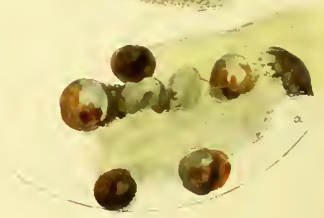
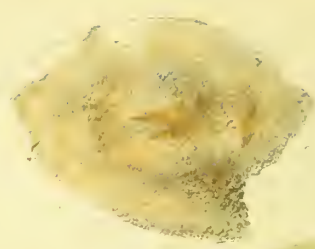
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II.—*Mycetoma: the Fungus-foot Disease of India.*

By JABEZ HOGG, Surgeon to the Royal Westminster Ophthalmic Hospital, Hon. Sec. R.M.S., &c.

(Taken as read before the ROYAL MICROSCOPICAL SOCIETY, Feb. 7, 1872.)

PLATE X.

THE specimen of Fungus-foot disease I wish to bring to the notice of the Society was lately received from Dr. Blanc, of H.M. Indian Army, Surgeon in charge of the Rajkote Hospital. The points of interest in connection with it are, first, the disease, which was found to be confined to the sole of the foot, occurred in an unusually young person, a native of 18 years of age, who had previously enjoyed good health; secondly, soon after coming into hospital Mycetoma was diagnosed by Dr. Blanc, who on submitting a very small piece, which came away in a poultice, to microscopical examination, observed well-defined filaments of the fungus; and lastly, the affected part of the sole of the foot being immediately excised, the wound rapidly healed, and in a short time after the patient was able to leave the hospital cured.

The specimen, preserved in strong spirits of wine, presented a hardened, shrunken appearance when it came into my possession. As this was the first time I had had an opportunity of examining the disease in its earliest stage, I was little inclined to cut it about, and destroy its appearance. A small cut had, however, been made across the slightly prominent and discoloured centre of the mass, as represented in Fig. 1. This opening I carefully enlarged, removing small portions for microscopical examination; but finding nothing except quantities of fat-corpuscles and connective tissue, I dissected away a good deal of the surrounding structures, and came down upon two or three blackish-looking minute spots. With a low power, an inch and a half, and condensed light, I made out a group of globular bodies, exactly like balls of soot, or one of the *Smuts* of the Ustilaginous species; represented at Fig. 2, *a*.

EXPLANATION OF PLATE X.

- FIG. 1.—The section from foot: one-half the original size; showing diseased spot.  
„ 2.—*a*, Nest of soot-ball bodies, magnified 50  $\times$ . *b*, A portion of one of same after boiling in liquor potassæ, pressed out on a slide; exhibiting molecular and resinous matter; magnified 150  $\times$ .  
„ 3.—Another portion, showing at *c* fungoid threads; magnified 350  $\times$ . *d*, Amœboid bodies and fat-corpuscles, magnified 650  $\times$ . *f*, Fat-globules and crystalline or resinous matter.  
„ 4.—Another portion, showing well-defined disseminated cells, imbedded in homogeneous colouring matter; magnified 650  $\times$ . *g*, A detached spindle-shaped thread, surrounded by fat-corpuscles; also magnified 650  $\times$ .



On removing some of these small concretions, which proved to be too intractable for further microscopical examination, I placed them in a test-tube, covered them with liquor potassæ, and subjected them for a few minutes to a boiling heat. A small amount only of the colouring matter was dissolved out, but soon fragments were found to be soft enough to break up on a glass slide. A drop of glycerine solution was then added, and a thin glass cover placed over all. With a power of 350 diameters, I first observed numerous detached fragments of an orange-coloured resinous substance, a number of fat-globules and discoid bodies, with granular matter. On carefully focussing and illuminating the specimen by direct light, articulated filaments were seen imbedded, and slightly projecting beyond the edge of the coloured mass; represented at Fig. 3, *c*. When more magnified these were converted into free loops, not unlike papillæ. The fungus threads were for the most part exceedingly minute; there was a compressed, or fossilized appearance about them, if I may so express it.

On increasing the magnifying power to 650 diameters, these threads were resolved into long, jointed, dissepimented cells; some branching out (represented in Fig. 4) and attaining to a considerable length, while others terminate in an enlarged ovoid head, probably a spore receptacle, containing one or more spores. In others, again, a minute oil-globule apparently occupied the centre; but it is not easy to determine this point, from the large quantity of colouring matter present. A peculiar budding out was noticed in some of the globose cells (represented in Fig. 3, *e*), and a few bodies separated away from the coloured mass, were of a paler colour, and partaking of an amoeboid form (Fig. 3, *d*).<sup>\*</sup> These later somewhat reminded me of Haeckel's *Leptocytode*; from the cytode of which this histologist says: a homogeneous membrane is differentiated from the granular contents; prolongations thrust out, and ultimately becoming a free-moving body, a *Protamoeba primitiva*. The walls of the threads appear in some instances thick, while those which were separated from the homogeneous matter were exceedingly thin and transparent. Notwithstanding the boiling in liquor potassæ, large quantities of fat-granules continued to float about, and the carbonaceous colouring matter was not nearly removed. The growth in some particulars, save that of colour, appears to partake more of the nature of a confervoid plant in its simple articulated threads and cell multiplication, than of a "truffle-like fungus." But as "one swallow does not make a summer," neither does one examination enable me to write or speak with much authority on fungi. I should prefer, in all examinations of

<sup>\*</sup> Dr. Carter has I believe described, although I have not been able to refer to his paper, "Amoeboid bodies," in connection with an advance stage of the fungus-foot disease.

the lower forms of life, to see a hundred examples of the same organism present before asserting anything decidedly about it. I must, however, add, so far as I am able to draw a conclusion from the specimens of the fungus-foot I have examined, that, from the relatively small proportion the fungoid filaments bear to the diseased mass, the fungus can only be regarded as a secondary product; one which may aggravate disease, but can hardly be said to originate it.

In the present case, the entrance of the spores of a fungus into the sole of the foot, may be explained in this way. The patient, some six months before presenting himself at the Rajkote Hospital, struck his foot against a sharp stone, and cut it deeply. The cut healed up and was apparently forgotten: however, in about six months afterwards his attention was attracted to the old sore, first by "a gnawing pain," and then by the formation of an abscess, which induced him to seek advice at the hospital. Poultices were applied, in one of which a small blackish body was observed, and this upon microscopical examination proved to be fungoid. It is, therefore, somewhat probable that the spores or filaments of a *Leptothrix*, or parasitic smut, were forced into the wound at the moment the first accident occurred; and which Dr. Blanc was subsequently called upon to treat.

